

Nevada State Climate Office

Quarterly Report and Outlook

January – March 2019

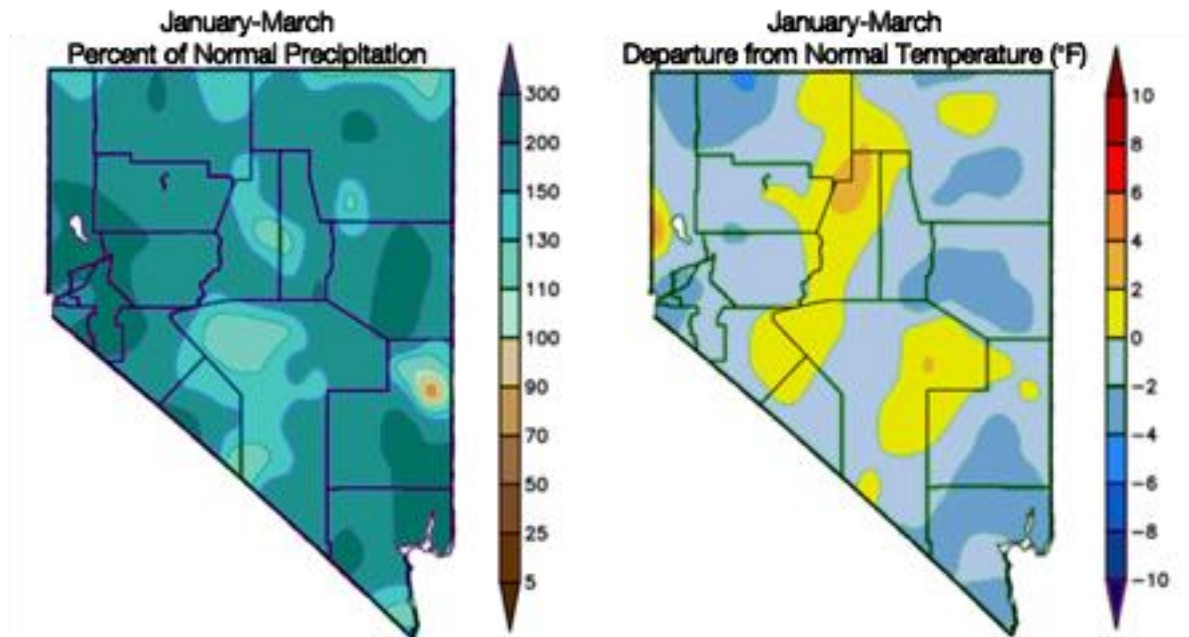
A Quick Note!

We're updating the Quarterly Report to meet new accessibility guidelines at the University of Nevada, Reno and because it's nice to refresh things once in a while. All the content you've come to expect is still here, but as in the midst of all renovations, things look a little less polished than they normally do. Stay tuned for our new look later in 2019!

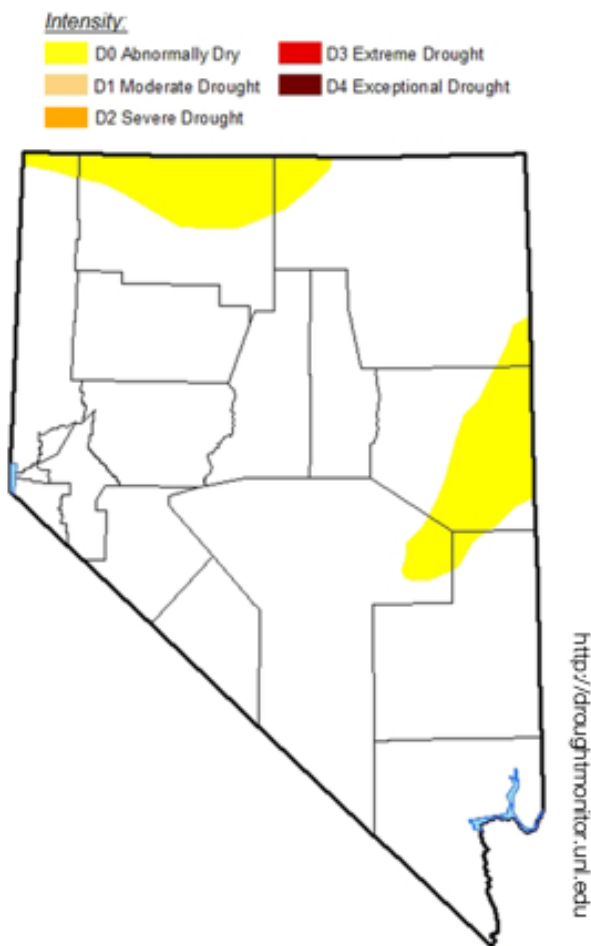
Notable Weather and Climate in Nevada

Statewide, we had a wet end to the winter. Most of the state ended the month of March with 110 to 200% of normal precipitation. Although there was a small localized area where precipitation was just shy of normal, that part of northern Lincoln county also seemed to have more missing precipitation data than usual. Temperatures were also relatively cool across much of the state, with January-March temperatures as much as 4°F below normal in Clark county, northeastern Nevada and far north Washoe and Humboldt counties. Slightly warmer than normal temperatures were observed near Battle Mountain.

Despite temperatures that were lower than we've come to expect, average temperatures were not especially cold relative to the 20th century average. In all four climate divisions, January-March average minimum temperatures were slightly warmer than the 1901-2000 average. Late winter average maximum temperatures were 0.9°F below normal in northeastern and northwestern Nevada, 1.6°F below normal in the south-central division, and 2.2°F below normal in the southernmost part of the state. Before the mid-1990s winters where the average temperature was 2, 3, or as much as 10°F below normal were not uncommon.



<https://hprcc.unl.edu/maps.php?map=ACISClimateMaps>

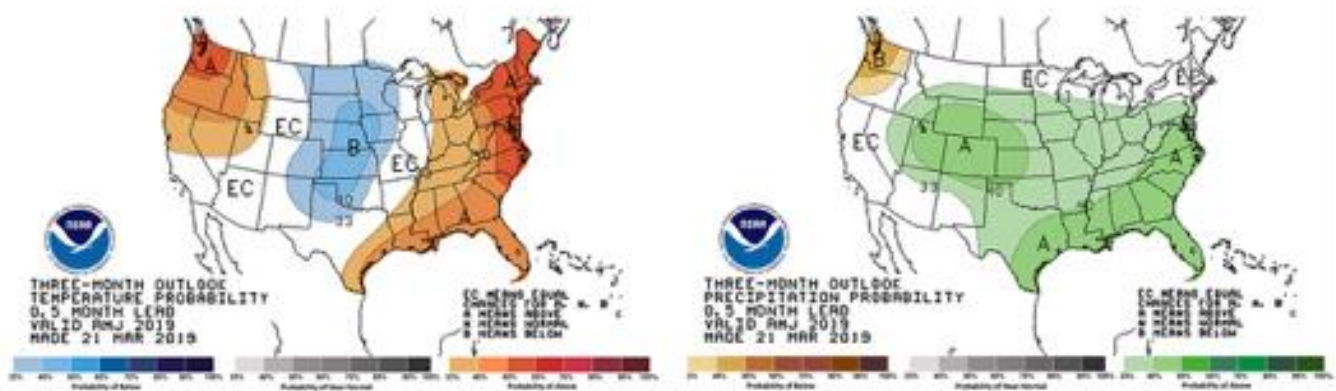


Because of the cool and wet conditions, drought impacts were drastically reduced across the state. As of April 2, about 10% of Nevada was experiencing abnormally dry (D0) conditions, with areas of drier than normal conditions in northern Humboldt and Washoe counties, as well as in a band stretching across eastern White Pine County into northeast Nye county. This is quite a change from early January, when 99% of the state was categorized in some type of drought, primarily D1 moderate drought.

Outlook for April - June

Throughout much of the fall and early winter, it looked like El Niño conditions were imminent. In mid-February, climatologists made the call that an El Niño was, in fact, occurring. It looks like El Niño conditions will persist into the summer and perhaps even into autumn. The El Niño likely influenced the western U.S. temperature and precipitation forecasts that you see below. Over most of Nevada, of course, the tropical Pacific isn't a great guide to the climate of the upcoming season. The spring forecast suggest

a slight chance of warmer than normal conditions in the northern two-thirds of the state, and a slight chance of wetter than normal conditions along the Utah border where much of the remaining dry conditions are. So let's keep our fingers crossed.

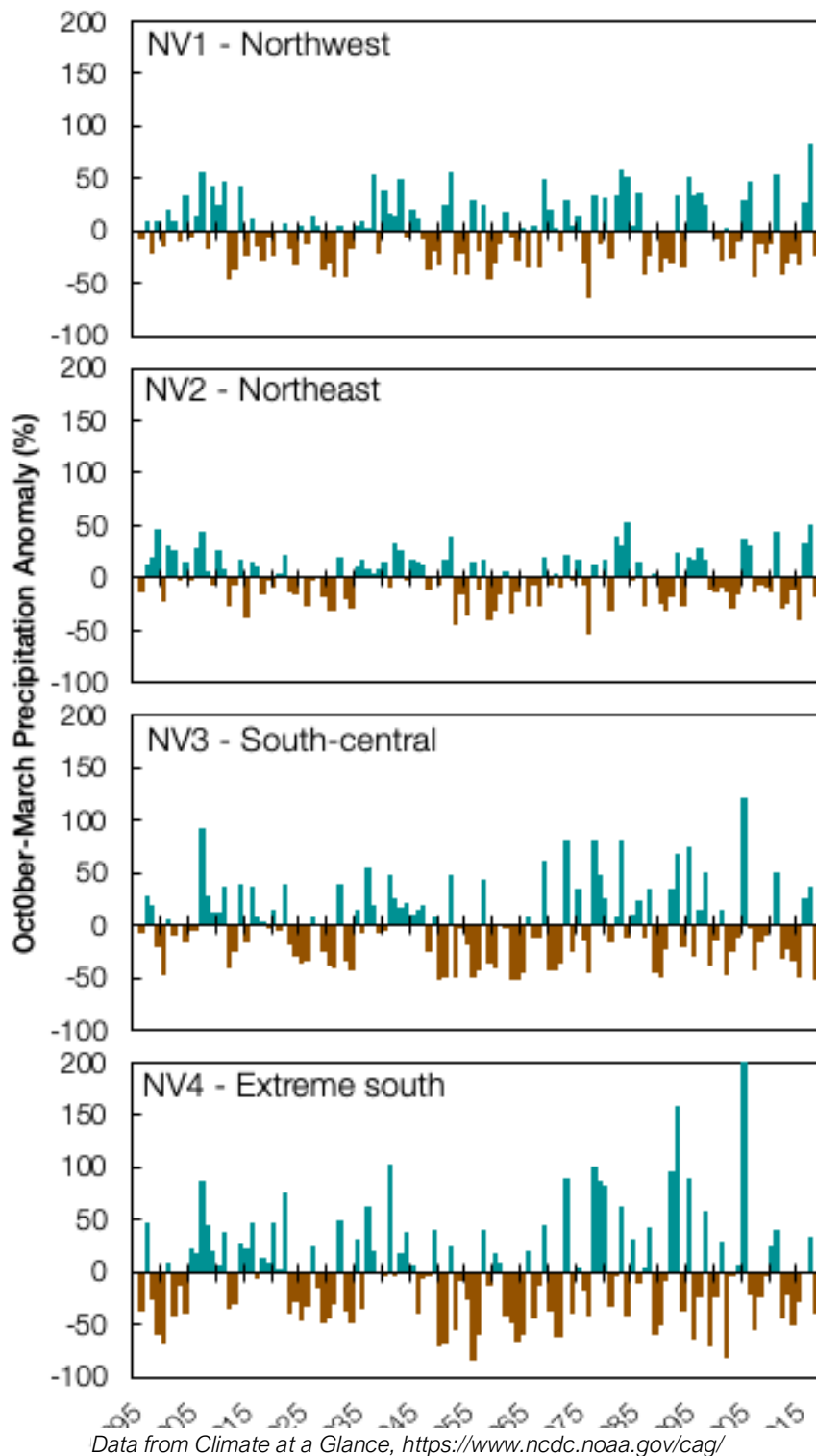


http://www.cpc.ncep.noaa.gov/products/predictions/90day

As an aside, if you've ever been curious about how climatologists decide whether there's an El Niño or not, Emily Becker has a great blog post on the question over at climate.gov. You can check it out at <https://www.climate.gov/news-features/blogs/enso/february-2019-enso-update-el-ni%C3%B1o-conditions-are-here>.

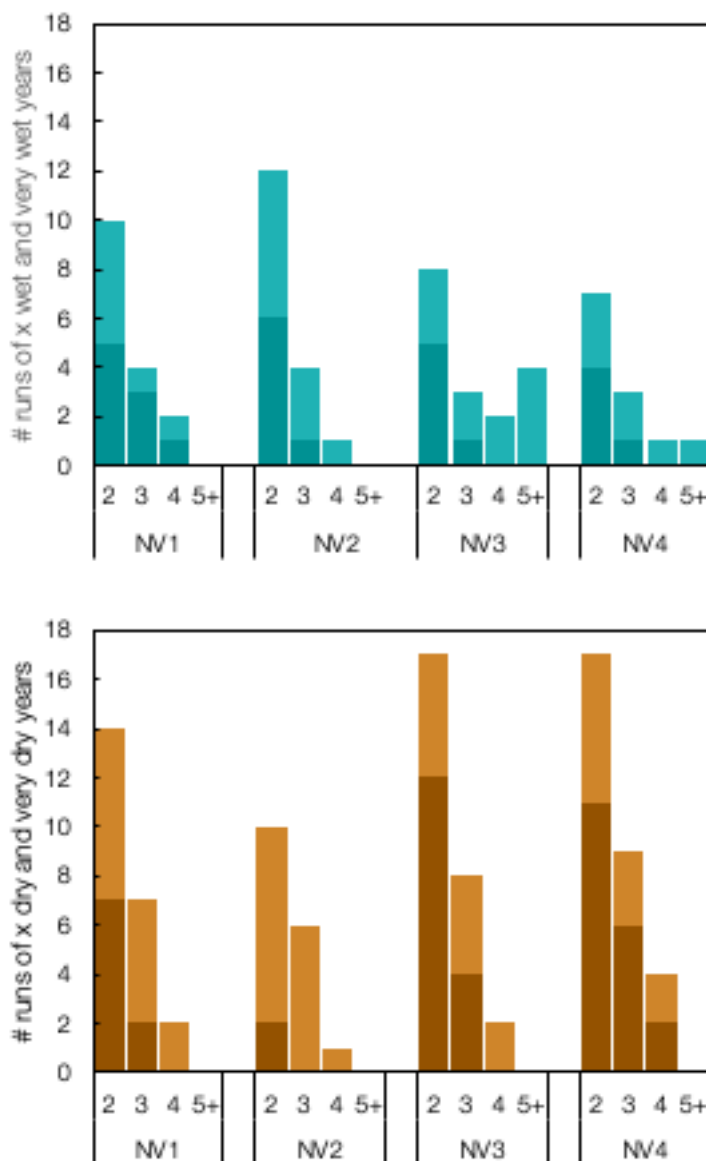
In depth

A couple of weeks ago, I was asked how common it is to have two or even more “good” winters in a row. My first guess was that it’s less common than having two or more dry winters in a row, but that I should probably look into that with data.



To the left are plots of the October-March precipitation anomalies – the observed value for a given year minus the 1901-2000 average – for each climate division for the winters of 1985-1896 through 2018-2019. These are a little different than the percent of normal precipitation maps that are shown above, but they convey the same information. A precipitation anomaly of +50% is the same as precipitation of 150% of normal. A precipitation anomaly of -25% is the same as 75% of normal.

The first thing we can see in all of these plots is that, yes, there are clusters of wet and dry years, but which ones make the cut as wet or dry? It doesn't make a lot of sense to differentiate between a year where the precipitation anomaly is +1% and one where the precipitation anomaly is -1%. I defined a wet winter as any winter where the precipitation anomaly was more than +10%, and a very wet winter when the precipitation anomaly was more than +25%. Dry and very dry winters had anomalies less than -10% and -25% or normal respectively.



Data from *Climate at a Glance*, <https://www.ncdc.noaa.gov/cag/>

With those definitions in place, it's possible to identify clusters of wet and dry years. The graphs on to the right show the number of "runs" where the winter precipitation was above or below normal for 2, 3, 4, or 5 or more years in a row. Two-year runs don't include two-year periods within longer runs. The way the data are plotted, the bars show the total number of runs of years that were wet or dry. The number of runs that were very wet or very dry *are* included in those totals, but they're highlighted in a darker color. For example, in Nevada division 1 (the northwest part of the state), there were 10 2-year wet runs, and five of those were runs of very wet years. There were also four 3-year runs, of which three were runs of very wet years.

Everywhere except division 2 (northwestern NV), runs of two or three consecutive dry winters are more common than similar length runs of consecutive wet winters. But, it's more common to get longer runs (five or more years) of wet winters, particularly in southern Nevada (divisions 3 and 4).

This provides a general picture, but results are likely to vary with the details of the analysis. Climate divisions are relatively large, and averages over such

broad areas can smooth out long dry or wet periods that only impact a part of that region. For example, if this analysis were repeated for just Reno or just Las Vegas, we would likely see more extreme anomalies, as well as longer wet and dry runs. We would likely also see more extreme anomalies and, perhaps longer runs if the the analysis focused on a shorter season – say January through March, because sometimes a storms late in the season can make up for a dry start, or a fall that starts wet can turn dry by spring.

Get in touch!

It's always great to hear from you! If you have questions, comments or concerns, you can always reach out to the State Climate Office at smcafee@unr.edu or 775-784-6999.